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AUTHOR Brady, Mary E.
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ABSTRACT

This paper describes one approach to providing communication aids, environmental controls, and computer access systems to handicapped children. The paper begins by defining "assistive device" and "rehabilitation technology." Service delivery issues include funding of high-cost device systems and provision of ongoing student evaluation, training, and follow-up therapies. The Pennsylvania Special Education Assistive Device Center has addressed these issues by developing a critical mass of technology availability and awareness in a segment of the preschool- and school-aged population. With adequate equipment, technical support, and training opportunities, a strong local network of expertise is formed. Using this approach, economies of scale and a cost-effective, ongoing service delivery system are being built. The Center has focused on communication, writing, and computer access aids more than on sensory, environmental control, mobility, or independent living aids. The Center operates an assistive device loan program. This program emphasizes cooperative relationships among agencies and students, local education agency responsibilities for insuring the equipment and guaranteeing its availability to students, and ongoing training activities. (JDD)

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Implementing a Service Delivery Program: Experiences in Pennsylvania

Mary E. Brady

Introduction

This conference is organized around the topics of planning, funding, student assessment and service delivery. The other three components of providing a state-wide system for utilization of assistive devices describe "what" (planning), "to what degree" (funding) and "for whom" (student assessment) the services and products are made available. The aspect of this process detailed in the following paper describes the "how"; the human systems, the pragmatic and logistic concerns that have been and continue to be necessary to consider in conducting one such program. Before any such discussion can be meaningful, however, we must be sure to approach the topic with a clear understanding of the realm being addressed.

I. Definition of Terms

In the special education technology universe inhabited by teachers, therapists, rehabilitation engineers, computer experts, administrators, parents and students even the term "assistive devices" is open to debate. It was recently defined in the Encyclopedia of Special Education:

> The term assistive device has been applied to a wide range of highly specialized mechanical, electronic, and computer-based tools which are now commonly used in rehabilitation and special education settings. The assistive device is typically designed to perform a particular prosthetic or orthotic function, but it is not a prosthesis nor an orthosis in the traditional medical sense. (Reynolds & Mann, 1987)

This functional definition goes on to include sensory aids, communication aids, computer access devices, and aids to daily living. Writing aids and special-function or adapted learning tools such as a specially-mounted commercial device, for example, a calculator or cassette tape recorder with sliding control to ease operation are also considered assistive or adaptive devices. The term "assistive devices" is preferable, because it relates to the function of the article, rather than to its derivation. Such devices may in fact be commercially available special function items, adapted from mass market items, or a combination of both. Most assistive device systems contain components of each, such as the typical Apple computer set-up, with an adapted keyboard, and a customized switch or headpointer.

Educators are not the only professionals currently struggling to define this realm. The Institute on Rehabilitation Issues, a consortium of vocational rehabilitation experts, provides this guidance:

> Rehabilitation technology includes compensatory strategies and adaptive equipment to increase or improve the functional capabilities of persons with disabilities. It is used to enhance the vocational, educational, and/or independent living opportunities for persons with disabilities. It may be further defined as technological methods of achieving practical purposes in the rehabilitation process. Devices, equipment, and strategies used in this process may be individually

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> created or may be adapted from available equipment or strategies. (Thirteenth Institute on Rehabilitation Issues, 1986).

Note that the IRI definition of "rehabilitation technology" is slightly broader than the Encyclopedia of Special Education's definition of "assistive devices". This reflects the appropriate life-spectrum concerns of the two areas: learning tools for students and vocational/independent living devices for vocational rehabilitation clients. Included in the IRI definition are biomedical technologies, wheelchairs, adapted vehicles and architechtural modifications, as well as non hardware-intensive strategies, such as job sharing.

Apart from vocational rehabilitation, service delivery in the area of assistive technology has also been provided by speech and language clinics, medical facilities, in research and development settings, by volunteer organizations such as the Telephone Pioneers of America, and by durable medical equipment (DME) dealers. Although this is a new area to special education, these other types of service providers have been involved in the area, albeit without a coordinated or comprehensive approach, and with spotty results, for many years. (Office of Technology Assessment, 1982).

The various components of service delivery include clinical, training and equipment provision aspects. Clinical services include assessment and evaluation (what's there in terms of student needs, capabilities and the technology available to meet those needs, and how well is it all working together?) and therapy (formal, goal-oriented practice with the device). The training areas are: training the end-user (student), training caregivers (teachers and therapists), and training parents and significant others (aides, attendants, siblings). The major concerns with regard to equipment are the (1) allocation of resources and, (2) the logistics of distribution.

II. Overview of Service Delivery Issues

With regard to providing communication aids, environmental controls and computer access systems to end consumers there have been two seemingly insurmountable problems confounding the effort: funding of high cost device systems and provision of ongoing student evaluation, training and follow-up therapies. In the past, locating a device which could provide the needed functions was also somewhat challenging; that at least has changed considerably with the current flock of multi-functional devices which can be accessed using a number of input techniques, and which in turn provide a wide number of output options.

The reasons given for the funding problem range from the relatively high cost of systems ($2000 - $12,000) to the unproven, or at least inadequately documented, efficacy of these tools as vocationally or educationally sound and necessary expenditures. Lack of professional expertise and available services for describing, then locating or designing the devices, training their use and providing the therapies (occupational, physical and speech/language) needed to use them is well known. The widespread availability of this technology is so recent that colleges are only beginning to offer comprehensive professional or pre-professional training programs for these disciplines using state-of-the-art technologies. As is traditional in human service professions, insufficient resources have been applied to achieve results in keeping with current knowledge. Unlike engineering or medicine, speech therapy and special education classes at the graduate and undergraduate levels have not kept pace with current technology practice. At present, only a handful of college programs training speech therapists offer even one course in augmentative communication. Instead, such efforts have evolved outside the traditional training grounds, through inservices, manfacturers' workshops, conferences and continuing

education offerings. Consequently, expertise is still diffuse, and it's development is not yet well-supported.

The approach taken by the Pennsylvania Special Education Assistive Device Center addresses these problems in a new way by achieving a critical mass of technology availability and awareness in a segment of the target consumer population. With adequate equipment, technical support and opportunities to participate in training activities, a strong local network of expertise naturally forms. Using this approach, economies of scale and a cost-effective, ongoing service delivery system are being built for the school-aged and preschool aged subset of the total client population which could benefit from the judicious application of these technologies. The program is in its third year of operation. Feedback from the intended service consumers (teachers, therapists, students) and from professional colleagues has been strongly supportive of the approach. Results are being continuously monitored through daily contact with local specialists and administrators, as well as more formal advisory processes and user surveys.

III. A Description of the Pennsylvania Service Delivery System 1129

The Pennsylvania Special Education Assistive Device Center (ADC) was conceived to provide appropriate and necessary technology to preschool and school-aged handicapped children in the state of Pennsylvania. In fact, the project has focussed more heavily on communication, writing and computer access aids than on sensory, environmental control, mobility or independent living aids. This decision was made because the population in need of communication, writing and computer access devices was seen to be the most underserved in past programs in the state at the time of this program's inception. In other words, we targeted the multiply physically handicapped students for whom little programmatic or technology expertise had existed to enhance educational opportunities in the past. Mobility needs were not addressed, per se, because of the cost involved and vast population needing such services; the responsibility of the LEAs and their existing relationships with private and public medical service providers was felt to take precedence with regard to wheelchairs, walkers, standing devices and transportation issues. Communication, computer access and writing aids can be appropriately addressed through a state-wide education agency program. It is true that a child who is inadequately positioned cannot hope to operate an assistive device effectively; for this reason the PA-ADC has employed a Seating and Positioning Specialist, and does address the area of device positioning, designing custom trays and switch mountings, and drawing attention to certain occupational therapy principles. Fortunately, commercially available aids have improved steadily over the past several years and now offer more reliable service and a variety of applications. Commercially-available seating systems which are modular and appropriate for our students are now much more widely in use.

The program is administered by the Central Pennsylvania Special Education Regional Resource Center (SERRC). SERRC has an ongoing educational service delivery network of some twenty years duration. It manages a large lending library of professional materials (including software), conducts workshops and inservice training on-site throughout the state, and most recently has been providing specific technical expertise and centralized laboratory style training in educational computer applications. There are 16 professional positions associated with operation of the Central SERRC. Two other Regional Resource Centers in the eastern and western parts of the state operate similar programs. All Resource Centers are funded by the Pennsylvania Department of Education, Bureau of Special Education. The Pennsylvania ADC program under discussion here is a statewide program; however, it was initiated and is administered by the Central SERRC.

The Central SERRC is located in Harrisburg, the state capital. The ADC is headquartered at Elizabethtown Hospital and Rehabilitation Center, a historically pediatric rehabilitation center 15 miles away. Staff at the ADC consists of the following five professional roles and backgrounds, with two support (clerical, secretarial) postitions: coordinator (M.S. - Educational Technology), augmentative communication specialist (CCC-speech), positioning and seating specialist (OTR/L), assistive device specialist (M.S. - Instructional Technology) and rehabilitation engineer (M.A. - Rehabilitation Engineering).

For the past five years, the Bureau of Special Education has operated a "Minigrant" program through the SERRCs. The Minigrant program is designed to distribute technology to special education classrooms using PL 94-142 funding...that is to say, such federal funding as is allocated and distributed based on the numbers of handicapped children served in a given geographical/locally-administered area. In Pennsylvania the Minigrant and ADC programs are both funded through PL 94-142. Teachers and therapists compete by writing small grant proposals delineating their need and plans for specific equipment. The grants are then processed through the appropriate SERRC for funding. During each of the past five years, $800,000.00 worth of high technology hardware and software, including classroom computers and sensory aids, were distributed by this program. From this successfully operating state program was formed the cornerstone of the Assistive Device Center's Program Plan--the Long Term Loan.

The Assistive Device Center was originally structured (in 1984) to support three full-time staff people serving as inservice trainers and technical advisors for therapists and teachers needing access to such expertise statewide. As educators were surveyed over time, their interest in and need for expanded services in this area became apparent. A statewide "awareness" conference in the fall of 1985 attracted the attendance of over 300 administrators and classroom personnel. The equipment requirements and the necessity of ongoing training in student needs identification, equipment function and application were readily apparent. Consequently, the Department of Education, Bureau of Special Education responded positively to the program plan presented in '85-86, allocating $500,000 to fund an assistive device loan program and also providing sufficient resources for adding two professional staff members to implement such a program.

The most frequently asked questions about this program include insurance concerns, equipment transition (from school to work or independent living settings), and concerns about adequate student assessment and follow-up services. One unifying philosophical strand dictates the way that these concerns are addressed in the program. Cooperative relationships among agencies and students are both required and supported by the ADC program. Ultimate responsibility for the success/usefulness of any technological aid system must rest with the end consumer. Along the way to achieving that goal of ultimate control over individual independence, local agents come heavily into play. Over the course of the students' school career, those individual professionals involved with the student change, and even the students' educational or home settings inevitably undergo change. Thus, no one professional or one agency or one program can assume continuous responsibility for services, cooperation or coordination of efforts. Consequently, the ADC loan program focuses on the individual student as the consistent, unifying agent for his/her own services. Devices are loaned, not to classrooms or to therapists, but to individual students for the duration of their need for that system, or until severance from special education services. Currently, options for funding the transition of functional equipment from school to work or independent living settings are being explored with other state and private agencies. Some creative and uniquely cost-effective strategies have been suggested.

Local educational agencies (LEAs) are required by the ADC loan program to insure equipment, and to guarantee its availability to the student at all times, including at-home use

and use during vacation periods. LEAs are also encouraged to make personnel available for training offered by the ADC. These local efforts are supported by a network of Local Augmentative Specialists (approximately 90 throughout the state) appointed locally by the Directors of Special Education. In an effort to de-centralize equipment knowledge, assessment techniques and therapy ideas, the ADC provides tools and ongoing training regionally for these specialists. Since turnover is relatively high among school personnel, such ongoing training is required and will continue to be a major need even as expertise is developed by individuals. It is a tenet of this program that effective follow-through services, although instigated and supported by the state agency (acting through the ADC program) must be maintained by the local personnel directly involved with the student on a daily basis. This approach reduces the previous emphasis on the prescriptive phase of device application, placing such emphasis instead on the follow-through phase.

IV. Implications

Methods of gauging the effectiveness of this program are being devised. A recent ADC-sponsored symposium (March/87) brought together academically-affiliated professionals from Pennsylvania and nearby states to examine research issues which could be addressed, given access to the client population of the project. Among the wide-ranging issues identified were concerns with device usage, communicative competency training of users and the appropriateness of cognitive demands placed on system users. While an important part of the overall effort is to examine and improve the service offered, we practitioners must seek to involve the research community in taking an unbiased measure of the actual effectiveness of these systems and strategies, once applied. Anecdotal reports and case studies need to be joined by longitudinal research with larger subject pools. Through this program, we can offer researchers access to such a group of potential subjects.

From other existing programs, alternate models of service delivery can offer exciting options, from which we hope to learn much as we proceed.

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